

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2005/004557

## A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl<sup>7</sup> H01L21/68, H02N13/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl<sup>7</sup> H01L21/68, H02N13/00, B23Q3/15

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

|                           |           |                            |           |
|---------------------------|-----------|----------------------------|-----------|
| Jitsuyo Shinan Koho       | 1922-1996 | Jitsuyo Shinan Toroku Koho | 1996-2005 |
| Kokai Jitsuyo Shinan Koho | 1971-2005 | Toroku Jitsuyo Shinan Koho | 1994-2005 |

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category*   | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No.                             |
|-------------|---|---|
| X<br>Y<br>A | JP 6-302678 A (Tokyo Electron Ltd.),<br>28 October, 1994 (28.10.94),<br>Full text; all drawings<br>(Family: none)   | 1-3, 13, 20, 21<br>15-19<br>7, 8                  |
| X<br>Y<br>A | JP 2002-124446 A (Ibiden Co., Ltd.),<br>26 April, 2002 (26.04.02),<br>Full text; all drawings<br>& EP 1124404 A1<br>Full text; all drawings<br>& US 2002/0043530 A1 & US 2003/0015521 A1<br>& WO 2001/039551 A1 | 1-3, 13, 17,<br>20, 21<br>4, 6, 14, 17-19<br>7, 8 |

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

\* Special categories of cited documents:

- A- document defining the general state of the art which is not considered to be of particular relevance
- E- earlier application or patent but published on or after the international filing date
- L- document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- O- document referring to an oral disclosure, use, exhibition or other means
- P- document published prior to the international filing date but later than the priority date claimed

-T- later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

-X- document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

-Y- document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

-&amp;- document member of the same patent family

Date of the actual completion of the international search  
13 June, 2005 (13.06.05)Date of mailing of the international search report  
28 June, 2005 (28.06.05)Name and mailing address of the ISA/  
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.         |
|-----------|--|-------------------------------|
| X         | JP 8-203991 A (APPLIED MATERIALS, INC.),<br>09 August, 1996 (09.08.96),  | 1-3, 5, 13, 15,<br>16, 20, 21 |
| Y         | Full text; all drawings<br>& EP 0692814 A1   | 4, 6, 9-12,<br>14-19          |
| A         | Full text; all drawings<br>& US 564814 A1  | 7, 8                          |
| X         | JP 2002-26113 A (Toshiba Corp.),<br>25 January, 2002 (25.01.02),   | 1-3, 5, 13, 20,<br>21         |
| Y         | Full text; all drawings<br>& US 2002/0006680 A1  | 6, 9-12, 14,<br>17-19         |
| A         | Full text; all drawings  | 7, 8                          |
| Y         | JP 2003-179128 A (NGK Spark Plug Co., Ltd.),<br>27 June, 2003 (27.06.03),<br>Full text; all drawings<br>(Family: none)     | 9                             |
| Y         | JP 2004-31594 A (Kyocera Corp.),<br>29 January, 2004 (29.01.04),<br>Par. No. [0019]; Fig. 2<br>(Family: none)              | 10-12                         |
| Y         | JP 2003-318251 A (Kyocera Corp.),<br>07 November, 2003 (07.11.03),<br>Claims; Fig. 2<br>(Family: none)                     | 18                            |
| Y         | JP 2004-31599 A (Kyocera Corp.),<br>29 January, 2004 (29.01.04),<br>Par. No. [0023]; Fig. 2<br>(Family: none)              | 18                            |
| Y         | JP 8-64663 A (Sumitomo Metal Industries, Ltd.),<br>08 March, 1996 (08.03.96),<br>Full text; all drawings<br>(Family: none) | 19                            |
| Y         | JP 11-251417 A (Kyocera Corp.),<br>17 September, 1999 (17.09.99),<br>Full text; all drawings<br>(Family: none)             | 19                            |